THAT WHICH IS CLAIMED:

1. A refining surface of a refining member adapted for use with a refiner for defibrating a lignocellulose-containing material, the refiner comprising at least two adjacently-disposed refining members arranged coaxially relative to each other along an axis, wherein at least one of the refining members is configured to rotate about a shaft arranged along the axis, and the at least two refining members are configured to receive the lignocellulose-containing material therebetween such that the material is defibrated by the respective refining surface of each refining member, the refining surface of the refining member comprising:

a plurality of first grooves, each first groove being defined between two adjacent first bar portions of the refining surface, and extending between opposing first and second radial edges of the refining surface; and

a plurality of second grooves, each second groove being defined between two adjacent second bar portions of the refining surface forming each first bar portion, and extending between two adjacent first grooves, the first bar portions being wider than the second bar portions, and each second bar portion being between about 1 mm and about 3 mm wide.

2. A refining surface of a refining member according to claim 1, wherein the first bar portions have an average first bar portion width, and wherein one of the second bar portions and adjacent second groove define a combined unit, the combined units having an average combined unit width, the average first bar portion width being between about 2.5 times and about 40 times the average combined unit width.

3. A refining surface of a refining member according to claim 1, wherein the refining surface of the refining member defines a total surface area, and wherein the second bar portions and the second grooves collectively define a refining zone having a refining zone area, the refining zone area being between about 60% and about 90% of the total surface area.

4. A refining surface of a refining member according to claim 3, wherein the refining zone area is between about 70% and about 80% of the total surface area.

5. A refining surface of a refining member according to claim 1, wherein each of the first bar portions has a width of between about 15 mm and about 80 mm, each of the first grooves has a width of between about 5 mm and about 40 mm and a depth of between about 10 mm and about 40 mm.

6. A refining surface of a refining member according to claim 1, wherein the refining surface is further configured to have at least one of a varying first bar portion width, a varying first groove width, and a varying first groove depth, between the first and second radial edges.

7. A refining surface of a refining member according to claim 1, wherein the first grooves are configured in a pumping configuration toward the first radial edge of the refining surface and in a retentive configuration toward the second radial edge of the refining surface, and wherein the lignocellulose-containing material is fed into the refiner toward the first radial edge and discharged from the refiner toward the second radial edge.

8. A refining surface of a refining member according to claim 1, wherein each of the second grooves has a width of between about 1 mm and about 3 mm and a depth of between about 3 mm and about 5 mm.

9. A refining surface of a refining member according to claim 1, wherein the refining surface is further configured to have at least one of a varying second bar portion width, a varying second groove width, a varying second groove depth, between the two adjacent first grooves.

10. A refining surface of a refining member according to claim 1, wherein the refining member defines a radius, and the second bar portions and second grooves are

arranged on the first bar portions so as to define an angle of between about 5° and about 30° with respect to the radius.

11. A refining surface of a refining member according to claim 1, wherein the lignocellulose-containing material is fed into the refiner toward the first radial edge and discharged from the refiner toward the second radial edge, wherein the second grooves vary in width over a range having an upper limit and a lower limit, wherein the second grooves toward the first radial edge of the refining surface are configured to be toward the upper limit of the width range and the second grooves toward the second radial edge of the refining surface are configured to be toward the lower limit of the width range, and wherein less second bar portions are disposed toward the first radial edge than toward the second radial edge of the refining surface.

12. A refining surface of a refining member according to claim 11, wherein the refining surface includes at least one refining surface zone between the first and second radial edges, and wherein the second grooves in each refining surface zone are deeper toward the first radial edge than toward the second radial edge of the refining surface.

13. A refining surface of a refining member according to claim 12, wherein each of the at least one refining surface zone includes a step in each of the second grooves disposed toward the first radial edge of the respective zone, the step being configured to minimize backflow of the lignocellulose-containing material toward the first radial edge.

14. A refining surface of a refining member according to claim 1, wherein, when the refining member comprises a rotor of the refiner, the refining surface further comprises at least one foil configured such that, when the rotor is rotated in a pumping direction, the at least one foil is arranged to produce a lifting force for directing the lignocellulose-containing material between the at least two refining members to intensify mixing of fibers of the lignocellulose-containing material with water and, when the rotor

is rotated in a non-pumping direction, the at least one foil is arranged to produce a pushing force for increasing a progression rate of the lignocellulose-containing material from the first radial edge toward the second radial edge.

15. A refining surface of a refining member according to claim 14, wherein the at least one foil is disposed within each of the first grooves.

16. A refining surface of a refining member according to claim 15, wherein the at least one foil extends transversely for between about 30 mm and about 80 mm, preferably between about 50 mm and about 60 mm, across each of the first grooves.

17. A refining surface of a refining member according to claim 1, wherein the first bar portions extend substantially linearly between the first and second radial edges of the refining surface.

18. A refining surface of a refining member according to claim 1, wherein the first bar portions extend arcuately between the first and second radial edges of the refining surface.

19. A blade segment of a refining member adapted for use with a refiner for defibrating a lignocellulose-containing material, the refiner comprising at least two adjacently-disposed refining members arranged coaxially relative to each other along an axis, wherein at least one of the refining members is configured to rotate about a shaft arranged along the axis, and the at least two refining members are configured to receive and defibrate the lignocellulose-containing material therebetween, the blade segment forming at least a portion of the refining member and comprising:

a refining surface defining a plurality of first grooves, each first groove being defined between two adjacent first bar portions of the refining surface, and extending between opposing first and second radial edges of the refining surface;

the refining surface further defining a plurality of second grooves, each second groove being defined between two adjacent second bar portions of the refining surface forming each first bar portion, and extending between two adjacent first grooves, the first bar portions being wider than the second bar portions, and each second bar portion being between about 1 mm and about 3 mm wide.

20. A blade segment of a refining member according to claim 19, wherein the first bar portions have an average first bar portion width, and wherein one of the second bar portions and adjacent second groove define a combined unit, the combined units having an average combined unit width, the average first bar portion width being between about 2.5 times and about 40 times the average combined unit width.

21. A blade segment of a refining member according to claim 19, wherein the refining surface of the blade segment defines a total surface area, and wherein the second bar portions and the second grooves collectively define a refining zone having a refining zone area, the refining zone area being between about 60% and about 90% of the total surface area.

22. A blade segment of a refining member according to claim 21, wherein the refining zone area is between about 70% and about 80% of the total surface area.

23. A blade segment of a refining member according to claim 19, wherein each of the first bar portions has a width of between about 15 mm and about 80 mm, each of the first grooves has a width of between about 5 mm and about 40 mm and a depth of between about 10 mm and about 40 mm.

24. A blade segment of a refining member according to claim 19, wherein the refining surface is further configured to have at least one of a varying first bar portion width, a varying first groove width, and a varying first groove depth, between the first and second radial edges.

25. A blade segment of a refining member according to claim 19, wherein the first grooves are configured in a pumping configuration toward the first radial edge of the refining surface and in a retentive configuration toward the second radial edge of the refining surface, and wherein the lignocellulose-containing material is fed into the refiner toward the first radial edge and discharged from the refiner toward the second radial edge.

26. A blade segment of a refining member according to claim 19, wherein each of the second grooves has a width of between about 1 mm and about 3 mm and a depth of between about 3 mm and about 5 mm.

27. A blade segment of a refining member according to claim 19, wherein the refining surface is further configured to have at least one of a varying second bar portion width, a varying second groove width, a varying second groove depth, between the two adjacent first grooves.

28. A blade segment of a refining member according to claim 1, wherein the refining member defines a radius, and the blade segment is disposed such that the second bar portions and second grooves are arranged on the first bar portions so as to define an angle of between about 5° and about 30° with respect to the radius.